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TITLE: CD-ROM READING SYSTEM AND CD-ROM READING METHOD

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ABSTRACT:

PROBLEM TO BE SOLVED: To enable retrieval of data which are written before a file additionally written with the same name onto a writable CD-ROM medium.

SOLUTION: A session information processing section 123 determines a processing target session on the basis of storage contents in a CD-ROM number of sessions storage section 124 and a read session number storage section 125, and feeds the address of a root directory back to a device driver 120. A virtual RD information management section 135 determines whether or not a final session was processed with the address of a root directory of a session which had been processed immediately before and stored in a last session RD address storage section 133, and stores information such as a pointer of each session into a virtual RD information storage section 134. In addition, the virtual RD information management section 135 realizes a virtual root directory in a higher order, and provides the virtual root directory to application software 140.

NOTICES *

.This document has been translated by computer. So the translation may not reflect the original precisely.
.**** shows the word which can not be translated.
.In the drawings, any words are not translated.

)ETAILED DESCRIPTION

)etailed Description of the Invention]
)001]
Field of the Invention] This invention relates to the CD-ROM read-out system which can take out what was written
ıe CD-ROM medium which can be added especially at the point of the file by which additional writing was carried
y the same identifier about a CD-ROM read-out system, and the CD-ROM read-out approach.
)002]
)escription of the Prior Art] Conventionally, this kind of CD-ROM read-out system is used in order to access to the
'D-ROM medium which performed file updating and which can be added so that it may be indicated by JP,2-67618,A.
)003] Drawing 10 is a drawing explaining a Prior art, and is outline logical format drawing showing the directory o
ıe CD-ROM medium which performed file updating once, and which can be added, and the relation of a file. When
rawing 10 is referred to, on this CD-ROM medium a root directory 1000 and four subdirectories (SD1, SD2, SD3,
D4) 1011, 1012, 1013, and 1014 four files (A, B, C, D) 1021, 1022, 1023, and 1024 the file (B') 1031 which update
ıe file (B) 1022, and the added file (E) -- 1032 -- Files 1021, 1022, 1023, 1024, 1031, and 1032 (A, B, C, D, B', E) T
ıbdirectory (SD2') 1040 to point out is formed.
)004] And the information on the pointer in which the location of a subdirectory (SD1) 1011 and a subdirectory (SD
012 is shown is recorded on the root directory 1000. Moreover, in a subdirectory (SD2) 1012, they are two
ıbdirectories (SD3, SD4) 1013 and 1014. Four files 1021, 1022, 1023, and 1024 (A, B, C, D) The information on th
ointer in which a location is shown is recorded. Moreover, the information on the pointer in which the location of fi
les (A, B', C, D, E) 1021, 1031, 1023, 1024, and 1032 is shown is recorded on the subdirectory (SD2') 1040.
)005] next, the condition 1050 of having written in for beginning to show in the upper right in drawing -- a root
irectory 1000 and four subdirectories (SD1, SD2, SD3, SD4) 1011, 1012, 1013, and 1014 Four files (A, B, C, D)
021, 1022, 1023, and 1024 a tree structure -- a table -- it is a thing the bottom. moreover, the condition 1060 after th
ostscript shown in the lower right in drawing -- a root directory 1000 and four subdirectories (SD1, SD2', SD3, SD4
011, 1040, 1013, and 1014 a tree structure with five files (A, B', C, D, E) 1021, 1031, 1023, 1024, and 1032 -- a tab
- it is a thing the bottom.
)006] Here, the system which accesses the directory and file on this CD-ROM medium is a root directory 1000 and
our subdirectories (SD1, SD2, SD3, SD4) 1011, 1012, 1013, and 1014 first. The content is read and the target
irectory or the information on a file is acquired. And also including the semantics in which a CD-ROM medium
hecks file updating or being added, the last logical sector on a CD-ROM medium is read, and it checks that the
ıbdirectory (SD2') 1040 is written in.
)007] Next, when it is able to be checked that the subdirectory (SD2') 1040 is written in, they are the four original
ıbdirectories (SD1, SD2, SD3, SD4) 1011, 1012, 1013, and 1014. Inside, information, such as each directory name
/hich it has, is compared, and it searches which was updated. And a CD-ROM read-out system accesses a target
irectory and a target file instead of the information on the searched subdirectory (SD2) 1012 using the information o
subdirectory (SD2') 1040.
)008]
?roblem(s) to be Solved by the Invention] since it is not taken into consideration at all about what the file of the
ormer mentioned above by which additional writing was carried out by the same identifier with the system by carry
ut CD-ROM reading appearance to the CD-ROM medium which can be added wrote in previously, there is a fault t
/hat the file by which additional writing was carried out by the same identifier wrote in previously cannot be taken o

;tuation. Moreover, drawing 3 is the flow chart showing actuation of the file information managerial system 130 in ;estalt of operation of the 1st of this invention.
0025] the actuation shown in the flow chart of drawing 2 when drawing 1 and drawing 2 are referred to -- the numb torage section 124 of CD-ROM sessions CD-ROM100 the total number of sessions -- the session information rocessing section 123 finishing [setting out] -- it is -- reading appearance -- carrying out -- the session number torage section 125 File information managerial system 130 or reading appearance -- carrying out -- session change oftware 150 finishing [setting out] -- or it is premised on being un-setting up.
0026] Here, it investigates whether the set point is in a device driver 120. When it receives and there is a demand of he address of a root directory, it is the read-out session number storage section 125 (step 201 : a sign 201 shows amo lrawing.). Suppose that it is the same as that of the following. And the read-out session number storage section 125 When there is the set point (for example, when it is one or more integers), it is the read-out session number storage ection 125. The set-up session and the number storage section 124 of CD-ROM sessions It is the driver interface ection 121 about the address of the root directory of the session of the direction which is the shown session and was vritten in previously. It minds and returns to a requiring agency (step 202).
0027] Moreover, the read-out session number storage section 125 When there is no set point (for example, when it i)), it is the driver interface section 121. It minds and is the number storage section 124 of CD-ROM sessions. The ddress of the root directory of the shown session is returned to a requiring agency (step 203).
0028] Next, when there is a demand of the information on a root directory with reference to drawing 1 and drawing t is the processing session number storage section 136. 1 which is the value which points out the session written in f eginning No. 1 is set up, and it is a device driver 120. It orders to process the 1st session (step 301 and 302). the dri nterface section 121 reading appearance -- carrying out -- the session number storage section 125 Device driver 120 fter setting up 1 of an instruction from -- the address of a root directory is acquired (step 303).
0029] this time -- the processing session number storage section 136 **** -- since 1 is set up -- device driver 120 fr - the address of the acquired root directory -- the before session RD address storage section 133 setting up (step 304 nd 305) -- the virtual RD information storage section 134 It registers (step 306). And the processing session number torage section 136 The content is incremented and it is a device driver 120. It orders to process degree session (step ;07).
0030] moreover, step 304 setting -- the processing session number storage section 136 the case where two or more a et up -- device driver 120 from -- the address of the acquired root directory, and the before session RD address stora ection 133 It investigates whether the address set up is the same (step 308).
0031] and the case where the last session is not being processed -- device driver 120 from -- since the address of the cquired root directory is the address of the root directory of the next session -- step 305 Performing henceforth is ontinued. moreover, the case where the last session finishes being processed -- device driver 120 from -- since the ddress of the acquired root directory is the address of the root directory of the last session -- step 305 henceforth -- n erforming -- CD-ROM100 It investigates whether additional writing is carried out (step 309).
0032] Here, it is CD-ROM100. When additional writing is carried out (when the set point of the processing session umber storage section 136 is three or more), it is the virtual RD information storage section 134. It returns to deman egistered information origin (step 310). moreover, CD-ROM100 the case (when the set point of the processing sessi umber storage section 136 is 2) where additional writing is not carried out -- device driver 120 from -- it returns to nformation on acquired root directory demand-origin (step 311).
0033] Next, the configuration of the 1st of one example of the gestalt of operation of this invention is explained to a letail. Drawing 4 is a drawing in which the configuration of one example of the gestalt of operation of this invention hown, and is drawing showing the outline logical format which shows the directory on [which can be added] a CD ROM medium which additional writing is carried out twice and has three sessions, and the relation of a file. Moreov lrawing 5 is a drawing in which the configuration of one example of the gestalt of operation of this invention is show nd is drawing which expressed the result at the time of processing drawing 4 with the tree structure.
0034] When drawing 4 and drawing 5 are referred to, on this CD-ROM medium root directory 400 Four subdirector SD1, SD2, SD3, SD4) 411,412,413,414 four files (A, B, C, D) 421,422,423,424 file (B) 422 Updated file (B') 441 Added file (E) 442 updated file (B') 441 Added file (E) 442 Subdirectory (SD2') 432 to point out updated subdirecto SD2') 432 Root directory (RD') 431 to point out file (A, B', C) 421,441,423 Updated file (A', B ", C') 461,462,463 dded file (F) 464 Subdirectory (SD2") 452 which points out the updated file (A', B ", C') 461,462,463 and the added ile (F) 464 The root directory (RD") 451 which points out the updated subdirectory (SD2") 452 is formed.
0035] root directory 400 **** -- two subdirectories (SD1, SD2) 411,412 The information on the pointer in which a

)cation is shown is recorded. subdirectory (SD2) 412 **** -- two subdirectories (SD3, SD4) 413,414 Four files (A, ', D) 421,422,423,424 The information on the pointer in which a location is shown is recorded.
0036] root directory (RD') 431 **** -- two subdirectories (SD1, SD2') 411,432 The information on the pointer in /hich a location is shown is recorded. subdirectory (SD2') 432 **** -- two subdirectories (SD3, SD4) 413,414 Five .les (A, B', C, D, E) 421 and 432,423,424,442 The information on the pointer in which a location is shown is record ı a root directory (RD") 451, they are two subdirectories (SD1, SD2") 411,452. The information on the pointer in /hich a location is shown is recorded. In a subdirectory (SD2") 452, they are two subdirectories (SD3, SD4) 413,414 nd six files (A', B ", C', D, E, F) 461, 462, and 463,424,442,464. The information on the pointer in which a location hown is recorded.
0037] next, the 1st session 470 shown in the upper right among drawing Root directory 400 Four subdirectories (SD D2, SD3, SD4) 411,412,413,414 and four files (A, B, C, D) 421,422,423,424 a tree structure -- a table -- it is a thin ıe bottom.
0038] moreover, the 2nd session 480 shown in the center of the right among drawing Root directory (RD') 431 Four ubdirectories (SD1, SD2', SD3, SD4) 411,432,413,514 Five files (A, B', C, D, E) 421 and 441,423,424,442 a tree tructure -- a table -- it is a thing the bottom.
0039] furthermore, the 3rd session 490 shown in the lower right among drawing Root directory (RD") 451 Four ubdirectories (SD1, SD2", SD3, SD4) 411,452,413,514 Six files (A', B ", C', D, E, F) 461, 462, and 463,424,442,46 ·ee structure -- a table -- it is a thing the bottom.
0040] Next, with reference to drawing 1 , drawing 2 , drawing 3 , drawing 4 , and drawing 5 , actuation of one xample of the gestalt of operation of the 1st of this invention is explained to a detail.
0041] Drawing 5 is a drawing in which the configuration of one example of the gestalt of operation of this invention hown, and is drawing which expressed the result at the time of processing drawing 4 with the tree structure.
0042] CD-ROM100 It is the CD-ROM medium which has the relation between the directory shown in drawing 4 , a file and which can be added. file information managerial system 130 The file information management SI section 1 \pplication software 140 from -- if there is a demand of a directory and the information on a file -- RD / SD nformation processing section 132 The virtual RD Research and Data Processing Department 135 He leaves ubsequent processing. And the virtual RD Research and Data Processing Department 135 Processing session numbe torage section 136 1 is set up and it is a device driver 120. It orders to process the 1st session (step 301 and 302). It he carrier beam driver interface section 121 about the instruction. Read-out session number storage section 125 1 is ıp.
0043] After the setting out and the RD/SD information processing section 132 Device driver 120 It receives and the .ddress of a root directory is required. Device driver 120 Driver interface section 121 When there is a demand of the .ddress of a root directory, it is the session information processing section 123. He leaves subsequent processing. It i he carrier beam session information processing section 123 about it. It is the read-out session number storage sectio .25 first. It investigates whether there is any set point (step 201).
0044] the number storage section 124 of CD-ROM sessions **** -- already -- the session information processing ection 123 -- CD-ROM reading appearance -- carrying out -- equipment 110 from -- obtained CD-ROM100 Althou hree sessions are set up reading appearance -- carrying out -- the session number storage section 125 **** -- since 1 et up -- the session information processing section 123 Driver interface section 121 It minds and is the root director 100 of the 1st session. They are RD / SD information processing section 132 about the address. It returns (step 202 a ;03).
0045] Here, it is the RD/SD information processing section 132. When the address of a root directory is acquired, h he virtual RD Research and Data Processing Department 135. Processing session number storage section 136 It nvestigates whether it is 1 (step 304). and the processing session number storage section 136 since setting out is 1 -- he virtual RD Research and Data Processing Department 135 RD / SD information processing section 132 from -- levice driver 120 from -- root directory 400 of the 1st acquired session the address -- acquiring -- the before session RD address storage section 133 It sets up (step 305). Furthermore, the virtual RD Research and Data Processing Department 135 It is the virtual RD information storage section 134 about this address. It registers and is the process .ession number storage section 136. The increment of the content is carried out (step 306 and 307). (1-2)
0046] Again, he is the virtual RD Research and Data Processing Department 135. Device driver 120 It orders to ırocess the 2nd session (step 302). It is the carrier beam driver interface section 121 about the instruction. Read-out .ession number storage section 125 2 is set up. After the setting out and the RD/SD information processing section 1 Device driver 120 It receives and the address of a root directory is required.

)047] Device driver 120 It is the root directory 431 of the 2nd session shortly to the demand. It is the RD/SD ıformation processing section 132 about the address. It returns (step 202 and 303). RD/SD information processing ection 132 When the address of a root directory is acquired, he is the virtual RD Research and Data Processing)epartment 135. Processing session number storage section 136 It investigates whether it is 1 (step 304).
)048] next time -- the processing session number storage section 136 since it is 2 -- the virtual RD Research and Da 'rocessing Department 135 The RD/SD information processing section 132 from -- device driver 120 from -- root irectory 431 of the 2nd acquired session the address -- acquiring -- the before session RD address storage section 13 : investigates whether it is the same (step 308).
)049] the before session RD address storage section 133 **** -- root directory 400 of the 1st session since the addre ; memorized -- the virtual RD Research and Data Processing Department 135 Root directory 431 of the 2nd session cquired previously the address -- the before session RD address storage section 133 It sets up (step 305). And the irtual RD Research and Data Processing Department 135 It is the virtual RD information storage section 134 about ıis address. It registers and is the processing session number storage section 136. The increment of the content is arried out (step 306 and 307). (2-3)
)050] Processing performed to the 2nd session is similarly performed to the 3rd session (steps 302, 303, 304, and 08,305,306,307), and they are 4 times and the virtual RD Research and Data Processing Department 135. Device ıiver 120 It orders to process the 4th session (step 302). It is the carrier beam driver interface section 121 about the ıstruction. Read-out session number storage section 125 4 is set up. After the setting out and the RD/SD information rocessing section 132 Device driver 120 It receives and the address of a root directory is required. And device drive 20 Driver interface section 121 When there is a demand of the address of a root directory, it is the session informati rocessing section 123. He leaves subsequent processing.
)051] It is the carrier beam session information processing section 123 about it. It is the read-out session number torage section 125 first. It investigates whether there is any set point (step 201). reading appearance -- carrying out - ıe session number storage section 125 ****, although 4 is set up the number storage section 124 of CD-ROM sessio *** -- already -- the number Research and Data Processing Department 123 of sessions CD-ROM reading appearan - carrying out -- equipment 110 from -- obtained CD-ROM100 Since 3 of the number of sessions is set up Session ıformation processing section 123 Driver interface section 121 It minds and is the root directory 451 of the 3rd ession. They are RD / SD information processing section 132 about the address. It returns (step 202 and 303).
)052] RD/SD information processing section 132 When the address of a root directory is acquired, he is the virtual :D Research and Data Processing Department 135. Processing session number storage section 136 It investigates /hether it is 1 (step 304). the processing session number storage section 136 since it is 4 -- the virtual RD Research a)ata Processing Department 135 The RD/SD information processing section 132 from -- device driver 120 from -- r irectory 451 of the 3rd acquired session the address -- acquiring -- the before session RD address storage section 13 t investigates whether it is the same (step 308).
)053] Before session RD address storage section 133 Root directory 451 of the 3rd session Since the address is ıemorized, he is the virtual RD Research and Data Processing Department 135. Processing session number storage ection 136 It investigates whether it is 2 (step 309). the processing session number storage section 136 since it is 4 - :D / SD information processing section 132 The virtual RD Research and Data Processing Department 135 from -- irtual RD information storage section 134 acquiring -- the same format as a root directory -- carrying out -- the file ıformation management SI section 131 minding -- application software 140 It returns (step 310). Application softw 40 By acquiring the above information, it becomes possible to recognize the tree structure of drawing 5 and to perate.
)054] Next, the gestalt of operation of the 2nd of this invention is explained to a detail with reference to a drawing.)rawing 6 is the block diagram showing the configuration of the 2nd of the gestalt of operation of this invention.
)055] At the gestalt of operation of the 2nd of this invention, it is the file information managerial system 630. File ıformation managerial system 130 in the gestalt of the 1st operation shown in drawing 1 In a configuration Virtual R ıformation storage section 134 Virtual RD Research and Data Processing Department 135 Instead the object ubdirectory Information storage section (henceforth the object SD information storage section) 633 a subdirectory - ifference -- an information table (the following and SD -- difference -- it is called an information table) 634 a ubdirectory -- difference -- the information table Management Department (the following and SD -- difference -- it alled the information table Management Department) 635 The session management section 638 It differs at the poin /hich it has.
)056] Object SD information storage section 633 The object SD information on the processed session is memorized

aving -- a subdirectory (SD2) -- difference 821 **** -- file (B) 422 The information on the pointer in which a locat shown is recorded.
0067] SD -- difference -- information table 830 It is in the condition immediately after processing the 3rd session. ubdirectory 412 (SD2) Subdirectory 432 (SD2') It doubles with difference. further -- subdirectory (SD2") 452 the ubdirectory (SD2) which memorizes difference -- difference 831 it registers -- having -- a subdirectory (SD2) -- ifference 831 **** -- File 421,422,441,423 (A, B, B', C) The information on the pointer in which a location is show recorded.
0068] Next, with reference to drawing 4 , drawing 6 , drawing 7 , drawing 8 , and drawing 9 , actuation of one xample of the gestalt of operation of the 2nd of this invention is explained to a detail.
0069] file information managerial system 630 The file information management SI section 631 Application softwar 40 from -- if there is a demand of the information on a subdirectory "SD2" -- the RD/SD information processing ection 632 The session management section 638 He leaves subsequent processing. And the session management ection 638 Processing session number storage section 637 1 is set up and it is a device driver 620. It orders to proce ne 1st session (step 701 and 702).
0070] It is the carrier beam driver interface section 621 about the instruction. Read-out session number storage secti 25 1 is set up. after the setting out and the RD/SD information processing section 632 Device driver 620 from -- roo irectory 400 of the 1st session The address is acquired (step 703). RD / SD information processing section 632 Whe ne address of a root directory is acquired, it is the session management section 638. Processing session number stora ection 637 It investigates whether it is 1 (step 704).
0071] the processing session number storage section 637 since it is 1 -- the session management section 638 RD / S nformation processing section 632 from -- device driver 620 from -- root directory 400 of the 1st acquired session th ddress -- acquiring -- the before session RD address storage section 636 It sets up (step 705). and the RD/SD nformation processing section 632 Subdirectory (SD2) 412 of the 1st session CD-ROM600 from -- searching -- the nformation -- acquiring -- the session management section 638 The processing session number storage section 637 I nade to check whether it is 1 (step 706 and 707).
0072] the RD/SD information processing section 632 The processing session number storage section 637 since it is step 708 processing -- not carrying out -- SD -- difference -- the information table Management Department 635 eceiving -- CD-ROM600 from -- subdirectory (SD2) 412 of the 1st acquired session information -- the object SD nformation storage section 633 It orders to make it memorize (step 709). In response, it is the session management ection 638. Processing session number storage section 637 The increment of the content is carried out (1-2), and it i levice driver 620 again. It orders to process the 2nd session (step 710 and 702).
0073] It is the carrier beam driver interface section 621 about the instruction. Read-out session number storage secti 25 2 is set up. after the setting out and the RD/SD information processing section 632 Device driver 620 from -- roo lirectory 431 of the 2nd session The address is acquired (step 703). RD/SD information processing section 632 Whe he address of a root directory is acquired, it is the session management section 638. It investigates whether the processing session number storage section 637 is 1 (step 704).
0074] next time -- the processing session number storage section 637 since it is 2 -- the session management section 38 RD / SD information processing section 632 from -- device driver 620 from -- root directory 431 of the 2nd cquired session the address -- acquiring -- the before session RD address storage section 636 It investigates whether s the same (step 711). the before session RD address storage section 636 **** -- root directory 400 of the 1st sessio since the address is memorized -- the session management section 638 Root directory 431 of the 2nd session acquire previously the address -- the before session RD address storage section 636 It sets up (step 705).
0075] and the RD/SD information processing section 632 Subdirectory (SD2) 432 of the 2nd session CD-ROM600 rom -- searching -- the information -- acquiring -- the session management section 638 The processing session numb storage section 637 It is made to check whether it is 1 (step 706 and 707).
0076] RD/SD information processing section 632 Processing session number storage section 637 Since it is 2 SD -- difference -- the information table Management Department -- CD-ROM600 from -- subdirectory (SD2) 432 of the 2 cquired session With information it registers with the object SD information storage section 633 -- making (a egistration result) Subdirectory (SD2) 412 of the 2nd session memorized difference with information -- SD -- difference -- information table 634 SD of drawing 8 -- difference -- table 820 reference -- further -- subdirectory (SD 412 of the 2nd session information -- the object SD information storage section 633 It is made to memorize (step 708 nd 709).
0077] And the session management section 638 Processing session number storage section 637 The increment of th

ontent is carried out (step 710). (from 2 to 3) Processing performed to the 2nd session is similarly performed to the ession (step 702 - step 710), and they are 4 times and the session management section 638. Device driver 620 It ord) process the 4th session (step 702). It is the carrier beam driver interface section 621 about the instruction. Read-ou ession number storage section 625 4 is set up. after the setting out and the RD/SD information processing section 63)evice driver 620 from -- root directory 451 of the 3rd session The address is acquired (step 703).

)078] RD / SD information processing section 632 When the address of a root directory is acquired, it is the session ıanagement section 638. Processing session number storage section 637 It investigates whether it is 1 (step 704). th rocessing session number storage section 637 since it is 4 -- the session management section 638 The RD/SD ıformation processing section 632 from -- device driver 620 from -- root directory 451 of the 3rd acquired session t ddress -- acquiring -- the before session RD address storage section 636 It investigates whether it is the same (step 11).

)079] Before session RD address storage section 636 Root directory 451 of the 3rd session Since the address is ıemorized, it is the RD/SD information processing section 632. Session management section 638 Processing session umber storage section 637 It is made to check whether it is 2 (step 712). the processing session number storage sect 37 since it is 4 -- the RD/SD information processing section 632 SD -- difference -- the information table Managem)epartment 635 SD -- difference -- the difference of the subdirectory of the information table 634 (the content of egistration SD of drawing 8 difference the table 830 reference) to the object -- information is retrieved -- making --)bject SD information storage section 633 It is made to merge (step 713).

0080] the last -- the RD/SD information processing section 632 SD -- difference -- the information table Manageme)epartment 635 from -- the object SD information storage section 633 the memorized content -- acquiring -- the file ıformation management SI section 631 minding -- application software 640 It returns (step 714). Application softw .40 By acquiring the above information, it becomes possible to recognize the tree structure shown in drawing 9 , and)perate.

0081]

Effect of the Invention] As explained above, in this invention, read the address of the root directory of all sessions vith the virtual RD Research and Data Processing Department and the before session RD address storage section, an ead by the session number storage section, and it accumulates in the virtual RD information storage section. Withou ıdding modification of what to application software and CD-ROM read-out equipment, in order to provide applicatio :oftware with it What was written in the point of the file by which additional writing was carried out by the same dentifier, and the thing written in behind can be read to the CD-ROM medium which can be added.

0082] Carry out reading appearance to an information table and the session management section, and reading ıppearance is carried out by the session number storage section. furthermore, the information on the object SD of all :essions -- SD -- difference -- the information table Management Department and SD -- difference -- In order to ıccumulate it in the object SD information storage section, to show it as one subdirectory and to provide application :oftware with it, What was written in the point of the file by which additional writing was carried out by the same dentifier, and the thing written in behind can be read to the CD-ROM medium which can be added, without adding nodification of what to application software and CD-ROM read-out equipment. Moreover, it necessarily looks)hysically neither from the same directory nor the subdirectory of plurality [file] in that case.

Translation done.]